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PHOTOCHEMISTRY OF HETEROCYCLIC COMPOUNDS

A Literature Survey

by

Edward J. Poziomek

September 1966

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FOREWORD

This work was conducted under the Mutual Educational and Cultural Exchange Act of 1961, Public Law 87-256. It is being published under Task IC622401A10204, Detection and Warning Investigations (U).

The survey was made during September 1965, while the author was on a leave of absence.

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DIGEST

The literature on the photochemistry of heterocyclic compounds was surveyed with a particular interest in pyridine chemistry.

This listing of references was compiled as a result of searching volumes 41 to 61 of Chemical Abstracts under the headings light, photochemistry, and pyridine. References to earlier work may be found in The Action of Ultraviolet Rays by C. Ellis and A. A. Wells (Reinhold Publishing Corp., New York, New York, 1941).

A complete survey of the photochemistry of heterocyclic compounds requires searching under each heterocyclic-ring heading. This presents a challenge that could not be met. Additional references may be found, however, in Präparative Organische Photochemie by A. Schönberg [Springer-Verlag, Berlin-Wilmersdorf (West), Germany, 1958] and in the Advances in Photochemistry series (Interscience Publishers, Inc., New York, New York, 1963).

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THE PHOTOCHEMISTRY OF HETEROCYCLIC COMPOUNDS

A Literature Survey

I. INTRODUCTION.

The US Army is interested in photochemistry for use in the fields of detection, stability of reagents, and synthesis, to mention a few. This listing of references provides a convenient source of citations for researchers faced with problems in photochemistry. References are listed alphabetically by author, and keywords are listed beside each reference as well as in an alphabetical index. The title following the author's name is either a paraphrased journal article title or, in instances where the article was not entirely about the photochemistry of heterocyclics, an indication of that part of heterocyclic photochemistry with which the article dealt.

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2, 2'-bipyridine
Ferrocyanide-
1, 10-phenanthroline | 6. Balzani, V., Carassiti, V., and Loos, R. S. Substitution Reactions in the Ferrocyanide-2, 2'-bipyridine, and Ferrocyanide-1, 10-phenanthroline Systems. Ann. Chim. (Rome) <u>54</u> , 103 (1964). [Chem. Abstr. <u>61</u> , 10220h.] |

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and o-phenanthroline tetra-
cyanoferrate
complexes | 7. Balzani, V., Carassiti, V., and Moggi, L. Light Induced Decomposition of Tetracyanoferrate Complexes of Bipyridine and o-Phenanthroline. <i>Ann. Chim. (Rome)</i> <u>54</u> , 251 (1964). [Chem. Abstr. <u>61</u> , 5120f.] |
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thiazole
Yeast | 8. Barnabei, G., and Brighenti, L. 2, 4-Dimethylthiazole Action on Yeast and Light. <i>Boll. Soc. Ital. Biol. Sper.</i> <u>30</u> , 461 (1954). [Chem. Abstr. <u>49</u> , 1872d.] |
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Pyridine
sensitizer
Picoline
sensitizer | 9. Belgian Patent 557,657 (to Kodak Soc. Anon.). Photographic Emulsions Supersensitized by Pyridine or Picoline. June 15, 1957. [Chem. Abstr. <u>54</u> , 133a.] |
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enylmethylene)-
malononitrile | 11. Belgian Patent 633,103. Heterocyclic Compounds Resistant to Light. Phenyl-(2-thienylmethylene)malononitrile. October 21, 1963. [Chem. Abstr. <u>61</u> , 8279i.] |
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glycols
Pyridyl glycols
Ketones
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dine | 13. Berson, J. A., and Brown, E. Irradiation of Dihydropyridines. <i>J. Am. Chem. Soc.</i> <u>77</u> , 450 (1955). |
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acid
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| Rhodopsin | 18. Bliss, A. F. Rhodopsin Transformation to Yellow Lipids in Light. <i>J. Biol. Chem.</i> <u>172</u> , 165 (1948). [Chem. Abstr. <u>42</u> , 3002f.] |
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| 3-Indoleacetic acid | 23. Brauner, L. 3-Indoleacetic Acid Decomposition by Light. <i>Z. Botan.</i> <u>42</u> , 83 (1954). [Chem. Abstr. <u>48</u> , 6842h.] |
| Visual pigments
Rhodopsin | 24. Bridges, C. D. B. Flash Photolysis of Visual Pigments. I. Pigments Present in Frog-Rhodopsin Solutions After Flash Irradiation. <i>Biochem. J.</i> <u>73</u> , 128 (1961). [Chem. Abstr. <u>55</u> , 22396h.] |

- Visual pigments
Rhodopsin
- Quinoline-N-oxide
- Carbo-styryl
N-Methylcarbo-styryl
- Quinoline-N-oxides
- Pyridine
- Dipyridyl
Silver dipyridyls
- DPN (diphosphopyridine nucleotide)
ATP (adenosine triphosphate)
- 1-Aza-2,5,7-trimethylcyclohepta-4,6-dien-2-one
- Uracil
- 2-Pyrone
N-Methyl-2-pyridone
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Triphenylformazan | 66. Hausser, K. H. Decomposition of Triphenyltetrazolium Chloride and Triphenylformazan. <i>Naturwissenschaften</i> <u>36</u> , 313 (1949). [Chem. Abstr. <u>44</u> , 5713e.] |
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